

Inspection Report For Well: UT20736 - 04410

U.S. Environmental Protection Agency
Underground Injection Control Program, 8ENF-T
999 18th Street, Suite 300, Denver, CO 80202-2466

This form was printed on 9/24/2013

INSPECTOR(S): Lead: Roberts, Sarah

Date: ¹²10/10/2013

Others: Ajayi, Christopher

Time: 12:36 am / pm

OPERATOR (only if different):

REPRESENTATIVE(S): Chad Stevenson

PRE-INSPECTION REVIEW

Petroglyph Operating Company, Inc

Well Name: Ute Tribal 28-05A

Well Type: Enhanced Recovery (2R)

Operating Status: AC (ACTIVE) as of 6/7/2003

Oil Field: Antelope Creek (Duchesne)

Location: SWNW S28 T5S R3W

Indian Country: X, Uintah and Ouray

Last Inspection: 8/28/2012

Allowable Inj Pressure: 2106 /

Last MIT: Pass 1/9/2009

Annulus Pressure From Last MIT: 1060

BLACK = POSSIBLE VIOLATION

GREY = DATA MISSING

INSPECTION TYPE:

(Select One)

☐ Construction / Workover

☐ Response to Complaint

☐ Other

☐ Plugging

☒ Routine

☐ Post-Closure

☐ Witness MIT

ICIS Entered

OBSERVED VALUES:

Date: ¹²12/20/13

Tubing Gauge: ☒ Yes

Pressure: U: 1899 / L: _____ psig

Initials: Gauge Owner: ☐ EPA ⁹³

☐ No

Gauge Range: Scada psig

☒ Operator

Annulus Gauge: ☒ Yes

Pressure: 0 psig

Gauge Owner: ☒ EPA

☐ No

Gauge Range: opened psig

☐ Operator

Bradenhead Gauge: ☐ Yes

Pressure: _____ psig

Gauge Owner: ☐ EPA

☐ No

Gauge Range: _____ psig

☐ Operator

Pump Gauge: ☐ Yes

Pressure: _____ psig

Gauge Owner: ☐ EPA

☐ No

Gauge Range: _____ psig

☐ Operator

Operating Status: ☐ Active

☒ Not Injecting

☐ Plugged and Abandoned

(Select One) ☐ Being Reworked

☐ Production

☐ Under Construction

GREEN	BLUE	CBI
	1	

See page 2 for photos, comments, and site conditions.

ICIS Entered

Date: 12/17/13

Initial: SL

Inspection Report For Well: UT20736 - 04410 (PAGE 2)

PHOTOGRAPHS:

☐

Yes

☒

No

List of photos taken: _____

Comments and site conditions observed during inspection: _____

GPS: GPS File ID: _____

Signature of EPA Inspector(s):

☐

Data Entry

☐

Compliance Staff

☐

Hard Copy Filing

NOTICE OF INSPECTION



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII, 999 18TH STREET - SUITE 500
DENVER, COLORADO 80202-2405

Date: 12/10/13

Notice of inspection is hereby given according to Section 1445(b) of the Safe Drinking Water Act (42 U.S.C. §300f et seq.).

Hour: 8:00a

Firm Name: Petroglyph Operating, Inc.

Firm Address: Roosevelt, UT, Antelope Creek Oil Field

REASON FOR INSPECTION:

For the purpose of inspecting records, files, papers, processes, controls and facilities, and obtaining samples to determine whether the person subject to an applicable underground injection control program has acted or is acting in compliance with the Safe Drinking Water Act and any applicable condition of permit or rule authorization.

SECTION 1445(b) of the SAFE DRINKING WATER ACT is quoted below:

Section 1445(b)(1): Except as provided in Paragraph (2), the Administrator, or representatives of the Administrator duly designated by him, upon presenting appropriate credentials, and a written notice to any supplier of water or other person subject to (a), or person subject (A) a national primary drinking water regulation prescribed under Section 1412(B) an applicable Underground Injection Control Program, or (C) any requirement to monitor an unregulated contaminant pursuant to subsection (a), or person in charge of any of the property of such supplier or other person referred to in clause (A), (B), or (C), is authorized to enter any establishment, ... facility, or other property of such supplier or other person in order to determine whether such supplier or other person has acted or is acting in compliance with this title, including for this purpose, inspection, at reasonable times, of records, files, papers, processes, controls, and facilities, or in order to test any feature of a public water system, including its raw water source. The Administrator or the Comptroller General (or any representative designated by either) shall have access for the purpose of audit and examination to any records, reports, or information of a grantee which are required to be maintained under subsection (a) or which are pertinent to any financial assistance under this title.

Sarah Roberts
Inspector's Name & Title (Print)

[Signature]
Inspector's Signature

Inspection Report For Well: UT20736 - 04410

U.S. Environmental Protection Agency
Underground Injection Control Program, 8ENF-T
999 18th Street, Suite 300, Denver, CO 80202-2466

This form was printed on 7/27/2012

INSPECTOR(S): Lead: Breffle, Don Date: 8/28/2012
Others: Zhang, Qian Time: 2:02 am / pm
OPERATOR (only if different): Chad Stevenson Rodrigo Herrada
REPRESENTATIVE(S):

PRE-INSPECTION REVIEW

Petroglyph Operating Company, Inc

Well Name: Ute Tribal 28-05A
Well Type: Enhanced Recovery (2R)
Operating Status: AC (ACTIVE) as of 6/7/2003
Oil Field: Antelope Creek (Duchesne)
Location: SWNW S28 T5S R3W
Indian Country: X, Uintah and Ouray
Last Inspection: 7/13/2010 Allowable Inj Pressure: 2106 /
Last MIT: Pass 1/9/2009 Annulus Pressure From Last MIT: 1060

BLACK = POSSIBLE VIOLATION

GREY = DATA MISSING

INSPECTION TYPE: (Select One) ☐ Construction / Workover ☐ Response to Complaint ☐ Other
☐ Plugging ☒ Routine Date: 9/2/12
☐ Post-Closure ☐ Witness MIT Initials: JB

OBSERVED VALUES:

Tubing Gauge: ☒ Yes Pressure: U: 1812 / L: _____ psig Gauge Owner: ☐ EPA
☐ No Gauge Range: 5000 _____ psig ☒ Operator
Annulus Gauge: ☒ Yes Pressure: 0 _____ psig Gauge Owner: ☐ EPA
☐ No Gauge Range: opened annulus _____ psig ☒ Operator
Bradenhead Gauge: ☐ Yes Pressure: _____ psig Gauge Owner: ☐ EPA
☐ No Gauge Range: _____ psig ☐ Operator
Pump Gauge: ☐ Yes Pressure: _____ psig Gauge Owner: ☐ EPA
☐ No Gauge Range: _____ psig ☐ Operator
Operating Status: (Select One) ☒ Active ☐ Not Injecting ☐ Plugged and Abandoned
☐ Being Reworked ☐ Production ☐ Under Construction

See page 2 for photos, comments, and site conditions.

TAB	GREEN	BLUE	CBI
		/	

Page 1 of 2

U2 Entered
Date: 9/2/12
Initial: JB

Inspection Report For Well: UT20736 - 04410 (PAGE 2)



PHOTOGRAPHS: ☐ Yes
☒ No

List of photos taken: _____

Comments and site conditions observed during inspection: _____

GPS: GPS File ID: _____

Signature of EPA Inspector(s):

☐ Data Entry ☐ Compliance Staff ☐ Hard Copy Filing

NOTICE OF INSPECTION



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII, 999 18TH STREET - SUITE 500
DENVER, COLORADO 80202-2405

Date: 8/28/12

Notice of inspection is hereby given according to Section 1445(b) of the Safe Drinking Water Act (42 U.S.C. §300f et seq.).

Hour: 8:00 AM

Firm Name: Petroglyph Operating Co

Firm Address: 4116 W 3000 S 106a Ln
Roosevelt, UT

REASON FOR INSPECTION:

For the purpose of inspecting records, files, papers, processes, controls and facilities, and obtaining samples to determine whether the person subject to an applicable underground injection control program has acted or is acting in compliance with the Safe Drinking Water Act and any applicable condition of permit or rule authorization.

SECTION 1445(b) of the SAFE DRINKING WATER ACT is quoted below:

Section 1445(b)(1): Except as provided in Paragraph (2), the Administrator, or representatives of the Administrator duly designated by him, upon presenting appropriate credentials, and a written notice to any supplier of water or other person subject to (a), or person subject (A) a national primary drinking water regulation prescribed under Section 1412(B) an applicable Underground Injection Control Program, or (C) any requirement to monitor an unregulated contaminant pursuant to subsection (a), or person in charge of any of the property of such supplier or other person referred to in clause (A), (B), or (C), is authorized to enter any establishment, ... facility, or other property of such supplier or other person in order to determine whether such supplier or other person has acted or is acting in compliance with this title, including for this purpose, inspection, at reasonable times, of records, files, papers, processes, controls, and facilities, or in order to test any feature of a public water system, including its raw water source. The Administrator or the Comptroller General (or any representative designated by either) shall have access for the purpose of audit and examination to any records, reports, or information of a grantee which are required to be maintained under subsection (a) or which are pertinent to any financial assistance under this title.

Don Brettle
Inspector's Name & Title (Print)
Dian Zhang

Don Brettle
Inspector's Signature
[Signature]



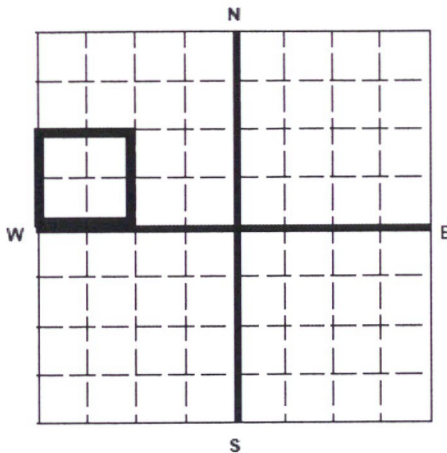
United States Environmental Protection Agency
Washington, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee
Petroglyph Operating Company, Inc. 2258
P.O. Box 7608
Boise, Idaho 83709

Name and Address of Surface Owner
Ute Indian Tribe
P.O. Box 70
Ft. Duchesne, Utah, 84026

Locate Well and Outline Unit on
Section Plat - 640 Acres



State
Utah

County
Duchesne

Permit Number
UT2736-04410

Surface Location Description

1/4 of 1/4 of SW 1/4 of NW 1/4 of Section 28 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface

Location 1644 ft. from (N/S) N Line of quarter section
and 675 ft. from (E/W) W Line of quarter section.

WELL ACTIVITY

☐ Brine Disposal
☒ Enhanced Recovery
☐ Hydrocarbon Storage

TYPE OF PERMIT

☐ Individual
☒ Area
Number of Wells 111

Lease Name Ute Indian Tribe

Well Number UTE TRIBAL 28-05A

INJECTION PRESSURE				TOTAL VOLUME INJECTED		TUBING - CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	16	1794	1845	125		0	0
February	16	1888	1911	189		0	0
March	16	1891	1905	303		0	0
April	16	1842	1877	204		0	0
May	16	1854	1883	205		0	0
June	16	1849	1901	202		0	0
July	16	1855	1876	181		0	0
August	16	1845	1881	175		0	0
September	16	1827	1855	145		0	0
October	16	1859	1870	223		0	0
November	16	1778	1835	120		0	0
December	16	1816	1835	224		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print)

Chad Stevenson, Water Facilities Supervisor

Signature

Chad Stevenson **U2 Entered**

Date Signed

03/21/2017

Date

Initial

4/5/17

JB

Units of Measurement: Standard

Water Analysis Report

Production Company: PETROGLYPH OPERATING CO INC - EBUS

Sales Rep: James Patry

Well Name: UTE TRIBAL 28-05A INJ, DUCHESNE

Lab Tech: Kaitlyn Natelli

Sample Point: Well Head

Sample Date: 1/6/2017

Scaling potential predicted using ScaleSoftPitzer from
Brine Chemistry Consortium (Rice University)

Sample ID: WA-345321

Sample Specifics		Analysis @ Properties in Sample Specifics			
		Cations	mg/L	Anions	mg/L
Test Date:	1/26/2017	Sodium (Na):	3467.44	Chloride (Cl):	4000.00
System Temperature 1 (°F):	300	Potassium (K):	20.83	Sulfate (SO ₄):	60.00
System Pressure 1 (psig):	2000	Magnesium (Mg):	11.76	Bicarbonate (HCO ₃):	2440.00
System Temperature 2 (°F):	130	Calcium (Ca):	23.41	Carbonate (CO ₃):	
System Pressure 2 (psig):	50	Strontium (Sr):	4.76	Hydroxide (HO):	
Calculated Density (g/ml):	1.0042	Barium (Ba):	14.35	Acetic Acid (CH ₃ COO)	
pH:	9.00	Iron (Fe):	6.44	Propionic Acid (C ₂ H ₅ COO)	
Calculated TDS (mg/L):	10071.98	Zinc (Zn):	0.55	Butanoic Acid (C ₃ H ₇ COO)	
CO ₂ in Gas (%):		Lead (Pb):	0.00	Isobutyric Acid ((CH ₃) ₂ CHCOO)	
Dissolved CO ₂ (mg/L):	0.00	Ammonia (NH ₃):		Fluoride (F):	
H ₂ S in Gas (%):		Manganese (Mn):	0.13	Bromine (Br):	
H ₂ S in Water (mg/L):	20.00	Aluminum (Al):	0.04	Silica (SiO ₂):	22.31
Tot. Suspended Solids (mg/L):		Lithium (Li):	2.98	Calcium Carbonate (CaCO ₃):	
Corrosivity (Langlier Sat. Indx)	0.00	Boron (B):	4.38	Phosphates (PO ₄):	6.28
Alkalinity:		Silicon (Si):	10.43	Oxygen (O ₂):	

Notes:

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO ₄ ·2H ₂ O		Celestite SrSO ₄		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
130.00	50.00	1.88	20.18	1.23	7.95	4.59	3.55	3.37	4.68	0.00	0.00	0.00	0.00	0.00	0.00	11.11	0.29
149.00	267.00	1.93	20.21	1.13	7.81	4.52	3.55	3.46	4.68	0.00	0.00	0.00	0.00	0.00	0.00	10.84	0.29
168.00	483.00	1.99	20.25	1.06	7.67	4.48	3.55	3.54	4.68	0.00	0.00	0.00	0.00	0.00	0.00	10.60	0.29
187.00	700.00	2.06	20.28	1.00	7.55	4.47	3.55	3.62	4.68	0.00	0.00	0.00	0.00	0.00	0.00	10.39	0.29
206.00	917.00	2.14	20.32	0.96	7.45	4.47	3.55	3.69	4.68	0.00	0.00	0.00	0.00	0.00	0.00	10.21	0.29
224.00	1133.00	2.22	20.35	0.93	7.39	4.48	3.55	3.76	4.68	0.00	0.00	0.00	0.00	0.00	0.00	10.04	0.29
243.00	1350.00	2.31	20.37	0.92	7.35	4.52	3.55	3.82	4.68	0.00	0.00	0.00	0.00	0.00	0.00	9.90	0.29
262.00	1567.00	2.41	20.40	0.92	7.34	4.56	3.55	3.87	4.68	0.00	0.00	0.00	0.00	0.00	0.00	9.77	0.29
281.00	1783.00	2.50	20.42	0.92	7.35	4.62	3.55	3.92	4.68	0.00	0.00	0.00	0.00	0.00	0.00	9.65	0.29
300.00	2000.00	2.60	20.43	0.93	7.38	4.68	3.55	3.96	4.68	0.00	0.00	0.00	0.00	0.00	0.00	9.55	0.29

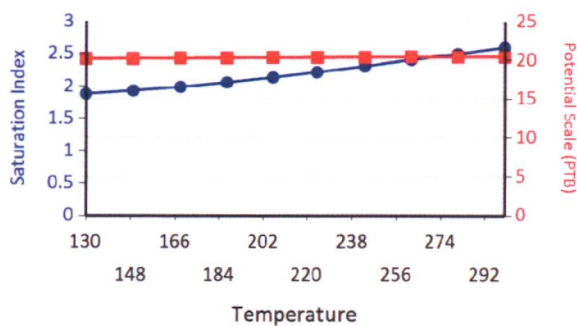
Water Analysis Report

Temp (°F)	PSI	Hemihydrate CaSO ₄ ~0.5H ₂ O		Anhydrate CaSO ₄		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
		SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
130.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00	1.99	0.36	0.00	0.00	6.51	23.22	3.71	28.08	13.51	5.01
149.00	267.00	0.00	0.00	0.00	0.00	0.00	0.00	2.19	0.37	0.00	0.00	7.19	23.34	4.06	28.74	13.91	5.01
168.00	483.00	0.00	0.00	0.00	0.00	0.00	0.00	2.37	0.37	0.00	0.00	7.86	23.41	4.42	29.22	14.32	5.01
187.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	2.53	0.37	0.00	0.00	8.52	23.44	4.77	29.55	14.73	5.01
206.00	917.00	0.00	0.00	0.00	0.00	0.00	0.00	2.67	0.37	0.00	0.00	9.16	23.47	5.12	29.76	15.15	5.01
224.00	1133.00	0.00	0.00	0.00	0.00	0.00	0.00	2.80	0.37	0.00	0.00	9.79	23.48	5.47	29.90	15.57	5.01
243.00	1350.00	0.00	0.00	0.00	0.00	0.00	0.00	2.91	0.37	0.00	0.00	10.38	23.49	5.80	29.99	15.97	5.01
262.00	1567.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	0.37	0.00	0.00	10.95	23.49	6.12	30.04	16.36	5.01
281.00	1783.00	0.00	0.00	0.00	0.00	0.00	0.00	3.07	0.37	0.00	0.00	11.49	23.49	6.43	30.08	16.74	5.01
300.00	2000.00	0.00	0.00	0.00	0.00	0.00	0.00	3.13	0.37	0.00	0.00	11.99	23.49	6.72	30.10	17.09	5.01

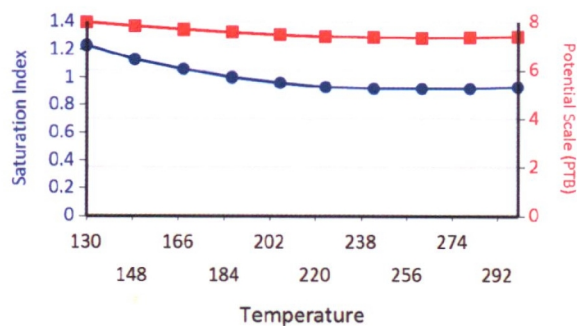
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

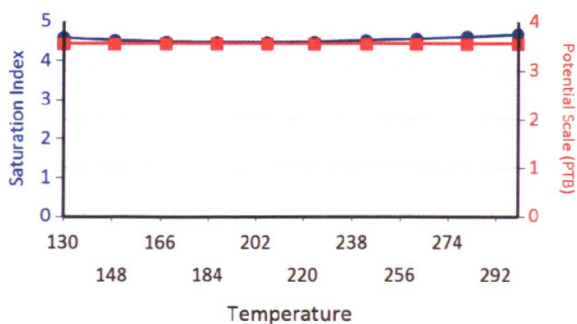
Calcium Carbonate



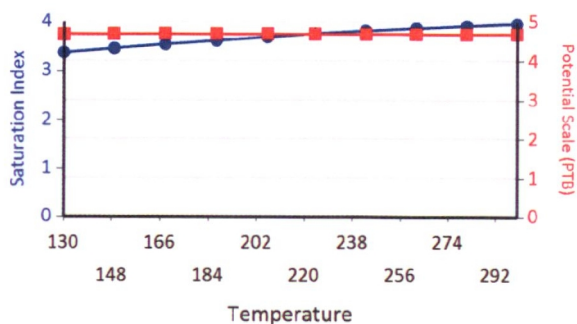
Barium Sulfate



Iron Sulfide

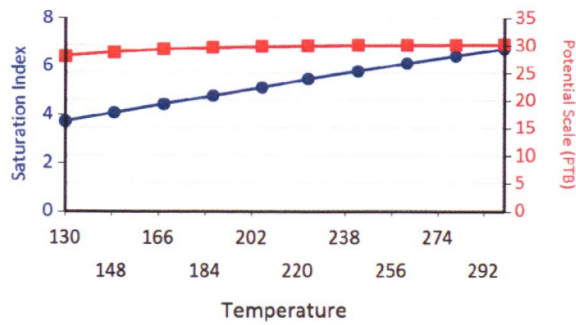


Iron Carbonate

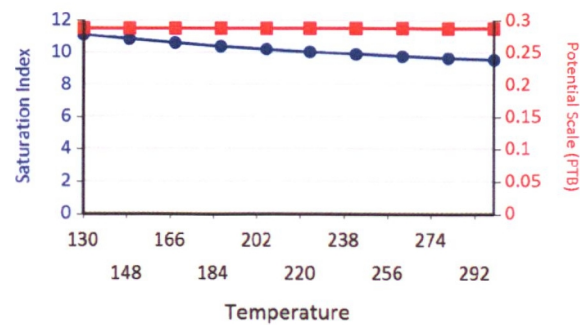


Water Analysis Report

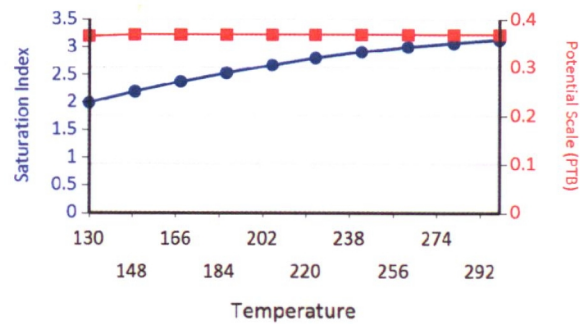
Ca Mg Silicate



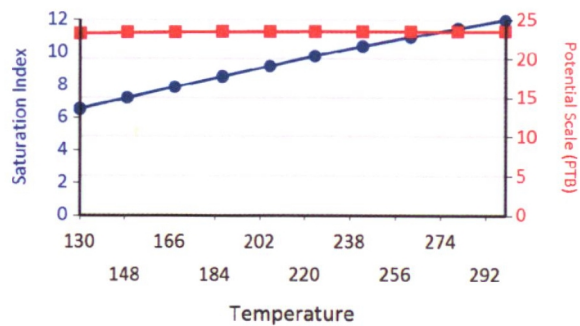
Zinc Sulfide



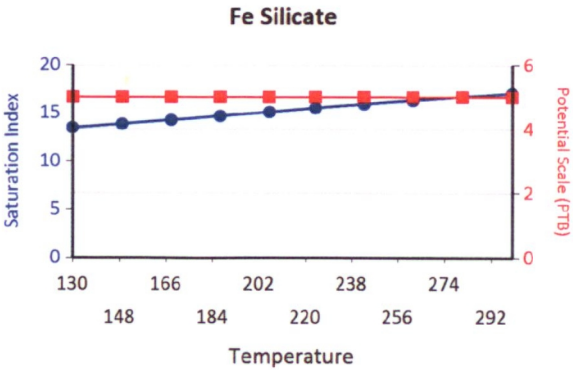
Zinc Carbonate



Mg Silicate



Water Analysis Report





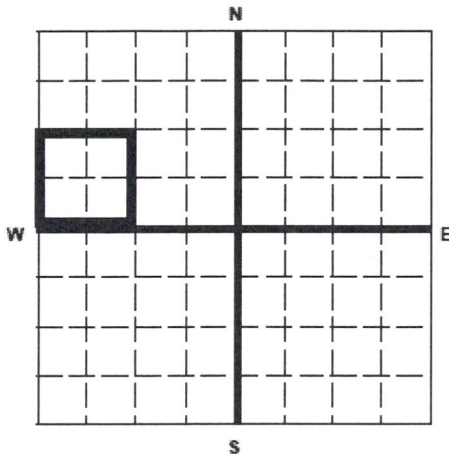
United States Environmental Protection Agency
Washington, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee
Petroglyph Operating Company, Inc. 2258
P.O. Box 7608
Boise, Idaho 83709

Name and Address of Surface Owner
Ute Indian Tribe
P.O. Box 70
Ft. Duchesne, Utah, 84026

Locate Well and Outline Unit on
Section Plat - 640 Acres



State Utah County Duchesne Permit Number UT2736-04434 04410

Surface Location Description
1/4 of 1/4 of SW 1/4 of NW 1/4 of Section 28 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface
Location 1644 ft. from (N/S) N Line of quarter section
and 675 ft. from (E/W) W Line of quarter section.

U2 Entered

WELL ACTIVITY

- ☐ Brine Disposal
☒ Enhanced Recovery
☐ Hydrocarbon Storage

TYPE OF PERMIT

- ☐ Individual
☒ Area
Number of Wells 111

Date 3/2/10

Initial JB

Lease Name Ute Indian Tribe Well Number UTE TRIBAL 28-05A

INJECTION PRESSURE				TOTAL VOLUME INJECTED		TUBING - CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	15	1799	1846	136		0	0
February	15	1847	1894	176		0	0
March	15	1865	1891	249		0	0
April	15	1842	1887	222		0	0
May	15	1859	1874	240		0	0
June	15	1870	1897	253		0	0
July	15	1870	1898	293		0	0
August	15	1862	1881	322		0	0
September	15	1828	1887	218		0	0
October	15	1847	1870	307		0	0
November	15	1869	1884	236		0	0
December	15	1872	1884	292		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print)

Chad Stevenson, Water Facilities Supervisor

Signature

Date Signed

02/08/2016



Units of Measurement: Standard

Water Analysis Report

Production Company: PETROGLYPH OPERATING CO INC - EBUS

Sales Rep: James Patry

Well Name: UTE TRIBAL 28-05A INJ, DUCHESNE

Lab Tech: Michele Pike

Sample Point: Well Head

Sample Date: 1/6/2016

Scaling potential predicted using ScaleSoftPitzer from
Brine Chemistry Consortium (Rice University)

Sample ID: WA-327657

Sample Specifics		Analysis @ Properties in Sample Specifics			
		Cations	mg/L	Anions	mg/L
Test Date:	1/13/2016	Sodium (Na):	4819.45	Chloride (Cl):	6500.00
System Temperature 1 (°F):	60	Potassium (K):	19.70	Sulfate (SO ₄):	340.00
System Pressure 1 (psig):	2000	Magnesium (Mg):	46.55	Bicarbonate (HCO ₃):	1830.00
System Temperature 2 (°F):	180	Calcium (Ca):	121.09	Carbonate (CO ₃):	
System Pressure 2 (psig):	50	Strontium (Sr):	6.09	Acetic Acid (CH ₃ COO)	
Calculated Density (g/ml):	1.0068	Barium (Ba):	2.32	Propionic Acid (C ₂ H ₅ COO)	
pH:	8.50	Iron (Fe):	4.30	Butanoic Acid (C ₃ H ₇ COO)	
Calculated TDS (mg/L):	13717.43	Zinc (Zn):	2.11	Isobutyric Acid ((CH ₃) ₂ CHCOO)	
CO ₂ in Gas (%):		Lead (Pb):	0.38	Fluoride (F):	
Dissolved CO ₂ (mg/L):	0.00	Ammonia NH ₃ :		Bromine (Br):	
H ₂ S in Gas (%):		Manganese (Mn):	0.15	Silica (SiO ₂):	25.29
H ₂ S in Water (mg/L):	0.00	Aluminum (Al):	0.10	Calcium Carbonate (CaCO ₃):	
Tot. Suspended Solids (mg/L):		Lithium (Li):	1.03	Phosphates (PO ₄):	6.78
Corrosivity (Langlier Sat. Indx)	0.00	Boron (B):	3.31	Oxygen (O ₂):	
Alkalinity:		Silicon (Si):	11.82		

Notes:

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO ₄ ·2H ₂ O		Celestite SrSO ₄		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180.00	50.00	2.18	99.74	0.83	1.18	0.00	0.00	2.86	3.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
167.00	267.00	2.10	97.36	0.86	1.19	0.00	0.00	2.76	3.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153.00	483.00	2.03	95.49	0.89	1.20	0.00	0.00	2.68	3.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140.00	700.00	1.97	93.43	0.93	1.22	0.00	0.00	2.59	3.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
127.00	917.00	1.92	91.22	0.98	1.24	0.00	0.00	2.50	3.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113.00	1133.00	1.87	88.91	1.05	1.26	0.00	0.00	2.41	3.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	1350.00	1.82	86.57	1.12	1.28	0.00	0.00	2.33	3.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
87.00	1567.00	1.77	84.25	1.22	1.30	0.00	0.00	2.24	3.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73.00	1783.00	1.74	82.01	1.32	1.31	0.00	0.00	2.15	3.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60.00	2000.00	1.70	79.89	1.45	1.33	0.00	0.00	2.06	3.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

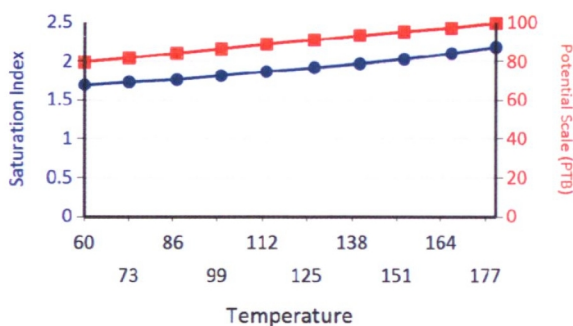
Water Analysis Report

Temp (°F)	PSI	Hemihydrate CaSO ₄ ~0.5H ₂ O		Anhydrate CaSO ₄		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
		SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00	2.44	1.41	0.00	0.00	7.49	58.71	4.36	31.86	11.52	3.34
167.00	267.00	0.00	0.00	0.00	0.00	0.00	0.00	2.30	1.41	0.00	0.00	6.88	53.31	4.01	30.24	11.08	3.34
153.00	483.00	0.00	0.00	0.00	0.00	0.00	0.00	2.15	1.41	0.00	0.00	6.31	48.88	3.68	28.67	10.69	3.34
140.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	1.41	0.00	0.00	5.74	44.30	3.36	26.83	10.30	3.34
127.00	917.00	0.00	0.00	0.00	0.00	0.00	0.00	1.83	1.40	0.00	0.00	5.16	39.77	3.04	24.80	9.92	3.34
113.00	1133.00	0.00	0.00	0.00	0.00	0.00	0.00	1.66	1.39	0.00	0.00	4.58	35.41	2.71	22.66	9.55	3.34
100.00	1350.00	0.00	0.00	0.00	0.00	0.00	0.00	1.47	1.37	0.00	0.00	3.99	31.21	2.39	20.44	9.18	3.34
87.00	1567.00	0.00	0.00	0.00	0.00	0.00	0.00	1.27	1.34	0.00	0.00	3.40	27.11	2.07	18.16	8.82	3.34
73.00	1783.00	0.00	0.00	0.00	0.00	0.00	0.00	1.06	1.29	0.00	0.00	2.80	23.00	1.75	15.80	8.46	3.34
60.00	2000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84	1.21	0.00	0.00	2.19	18.74	1.42	13.34	8.10	3.34

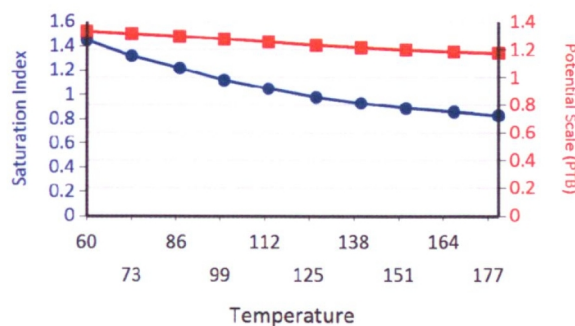
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Carbonate Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Carbonate Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

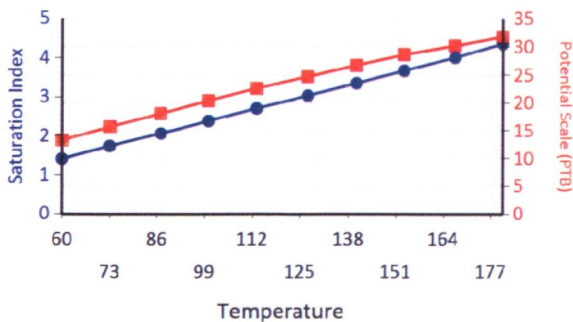
Calcium Carbonate



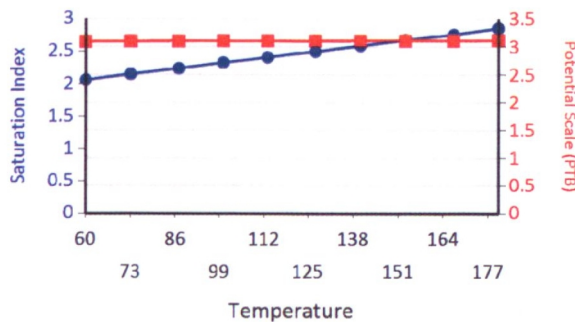
Barium Sulfate



Ca Mg Silicate

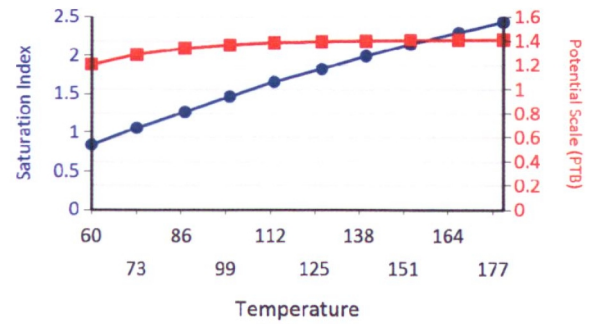


Iron Carbonate

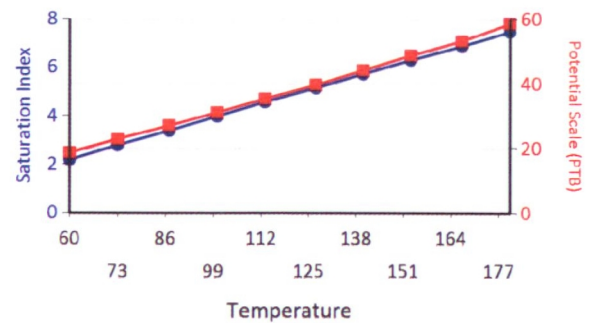


Water Analysis Report

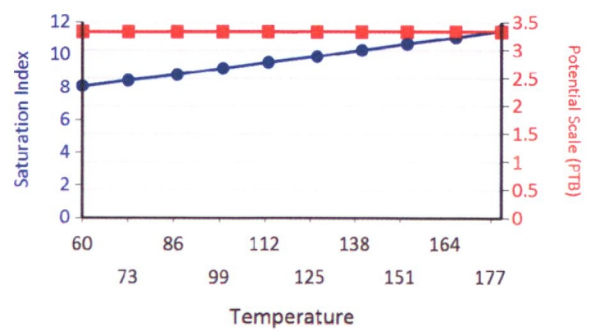
Zinc Carbonate



Mg Silicate



Fe Silicate





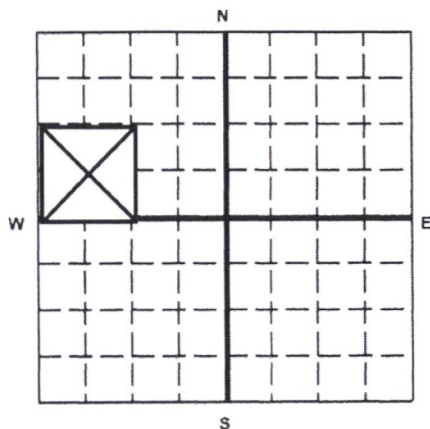
United States Environmental Protection Agency
Washington, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee
Petroglyph Operating Company, Inc. 2258
P.O. Box 7608
Boise, Idaho 83709

Name and Address of Surface Owner
Ute Indian Tribe
P.O. Box 70
Ft. Duchesne, Utah 84026

Locate Well and Outline Unit on
Section Plat - 640 Acres



State Utah County Duchesne Permit Number UT2736-04410

Surface Location Description

1/4 of 1/4 of SW 1/4 of NW 1/4 of Section 28 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface

Location 1644 ft. from (N/S) N Line of quarter section
and 675 ft. from (E/W) W Line of quarter section.

WELL ACTIVITY

- ☐ Brine Disposal
☒ Enhanced Recovery
☐ Hydrocarbon Storage

TYPE OF PERMIT

- ☐ Individual
☒ Area

Number of Wells 111

Lease Name Ute Indian Tribe

Well Number UTE TRIBAL 28-05A

INJECTION PRESSURE				TOTAL VOLUME INJECTED		TUBING -- CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	14	1894	1926	169		0	0
February	14	1904	1927	106		0	0
March	14	1864	1915	49		0	0
April	14	1904	1918	237		0	0
May	14	1874	1894	256		0	0
June	14	1899	1921	301		0	0
July	14	1855	1907	223		0	0
August	14	1872	1887	264		0	0
September	14	1783	1893	256		0	0
October	14	1891	1885	296		0	0
November	14	1888	1901	233		0	0
December	14	1880	1906	260		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print)

Chad Stevenson, Water Facilities Supervisor

Signature

Date Signed

2/10/2015

U2 Entered

Date

3/31/15

Initial

GW

	GREEN	BLUE	CBI
TAB		2	

Multi-Chem Analytical Laboratory

1553 East Highway 40

Vernal, UT 84078

Units of Measurement: **Standard**multi-chem[®]

A HALLIBURTON SERVICE

Water Analysis Report

Production Company: **PETROGLYPH OPERATING CO INC - EBUS**Well Name: **UTE TRIBAL 28-05A INJ, DUCHESNE**Sample Point: **WELLHEAD**Sample Date: **1/7/2015**Sample ID: **WA-297536**Sales Rep: **James Patry**Lab Tech: **Gary Winegar**Scaling potential predicted using ScaleSoftPitzer from
Brine Chemistry Consortium (Rice University)

Sample Specifics		Analysis @ Properties in Sample Specifics			
Test Date:	1/14/2015	Cations	mg/L	Anions	mg/L
System Temperature 1 (°F):	160	Sodium (Na):	2596.56	Chloride (Cl):	4000.00
System Pressure 1 (psig):	1300	Potassium (K):	40.78	Sulfate (SO ₄):	208.00
System Temperature 2 (°F):	80	Magnesium (Mg):	26.36	Bicarbonate (HCO ₃):	3416.00
System Pressure 2 (psig):	15	Calcium (Ca):	47.19	Carbonate (CO ₃):	
Calculated Density (g/ml):	1.0041	Strontium (Sr):	5.40	Acetic Acid (CH ₃ COO)	
pH:	8.40	Barium (Ba):	9.54	Propionic Acid (C ₂ H ₅ COO)	
Calculated TDS (mg/L):	10376.73	Iron (Fe):	0.63	Butanoic Acid (C ₃ H ₇ COO)	
CO ₂ in Gas (%):		Zinc (Zn):	0.39	Isobutyric Acid ((CH ₃) ₂ CHCOO)	
Dissolved CO ₂ (mg/L):	0.00	Lead (Pb):	0.02	Fluoride (F):	
H ₂ S in Gas (%):		Ammonia NH ₃ :		Bromine (Br):	
H ₂ S in Water (mg/L):	45.00	Manganese (Mn):	0.07	Silica (SiO ₂):	25.79

Notes:

B=5.92 Al=.05 Li=1.32

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO ₄ ·2H ₂ O		Celestite SrSO ₄		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
80.00	14.00	1.82	40.17	1.96	5.62	3.84	0.35	1.94	0.45	0.00	0.00	0.00	0.00	0.00	0.00	11.59	0.20
88.00	157.00	1.82	40.13	1.88	5.60	3.76	0.35	1.97	0.45	0.00	0.00	0.00	0.00	0.00	0.00	11.40	0.20
97.00	300.00	1.83	40.18	1.80	5.59	3.70	0.35	2.02	0.45	0.00	0.00	0.00	0.00	0.00	0.00	11.23	0.20
106.00	443.00	1.85	40.23	1.73	5.57	3.64	0.35	2.06	0.46	0.00	0.00	0.00	0.00	0.00	0.00	11.08	0.20
115.00	585.00	1.87	40.28	1.66	5.56	3.60	0.35	2.11	0.46	0.00	0.00	0.00	0.00	0.00	0.00	10.93	0.20
124.00	728.00	1.89	40.34	1.61	5.54	3.56	0.35	2.15	0.46	0.00	0.00	0.00	0.00	0.00	0.00	10.80	0.20
133.00	871.00	1.91	40.40	1.55	5.52	3.53	0.35	2.19	0.46	0.00	0.00	0.00	0.00	0.00	0.00	10.67	0.20
142.00	1014.00	1.93	40.45	1.50	5.50	3.51	0.35	2.23	0.46	0.00	0.00	0.00	0.00	0.00	0.00	10.55	0.20
151.00	1157.00	1.96	40.51	1.46	5.48	3.49	0.35	2.27	0.46	0.00	0.00	0.00	0.00	0.00	0.00	10.44	0.20
160.00	1300.00	1.99	40.57	1.42	5.46	3.48	0.35	2.31	0.46	0.00	0.00	0.00	0.00	0.00	0.00	10.34	0.20

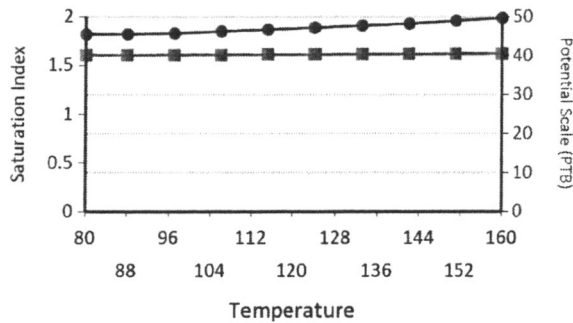
		Hemihydrate CaSO ₄ ·0.5H ₂ O		Anhydrite CaSO ₄		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
80.00	14.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84	0.22	12.57	0.01	1.76	15.49	0.74	6.63	6.10	0.49
88.00	157.00	0.00	0.00	0.00	0.00	0.00	0.00	0.95	0.23	12.27	0.01	2.04	17.09	0.87	7.44	6.20	0.49
97.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	1.07	0.24	12.00	0.01	2.41	19.49	1.06	8.70	6.41	0.49
106.00	443.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19	0.25	11.74	0.01	2.78	21.73	1.26	9.87	6.62	0.49
115.00	585.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	0.25	11.50	0.01	3.17	23.75	1.47	10.94	6.85	0.49
124.00	728.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40	0.25	11.27	0.01	3.55	25.54	1.68	11.90	7.09	0.49
133.00	871.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.25	11.06	0.01	3.95	27.06	1.89	12.73	7.33	0.49
142.00	1014.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60	0.26	10.86	0.01	4.34	28.30	2.10	13.45	7.58	0.49
151.00	1157.00	0.00	0.00	0.00	0.00	0.00	0.00	1.69	0.26	10.67	0.01	4.73	29.25	2.32	14.05	7.84	0.49
160.00	1300.00	0.00	0.00	0.00	0.00	0.00	0.00	1.78	0.26	10.49	0.01	5.13	29.94	2.54	14.55	8.10	0.49

Water Analysis Report

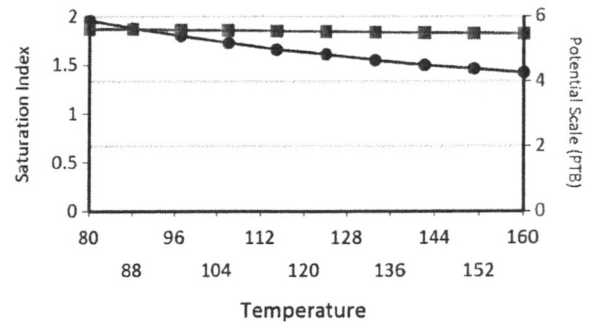
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Lead Sulfide Mg Silicate Ca Mg Silicate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Lead Sulfide Mg Silicate Ca Mg Silicate Fe Silicate

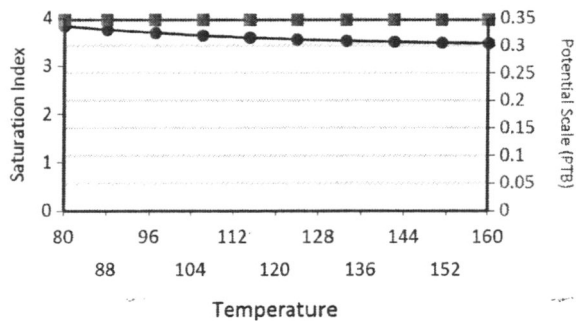
Calcium Carbonate



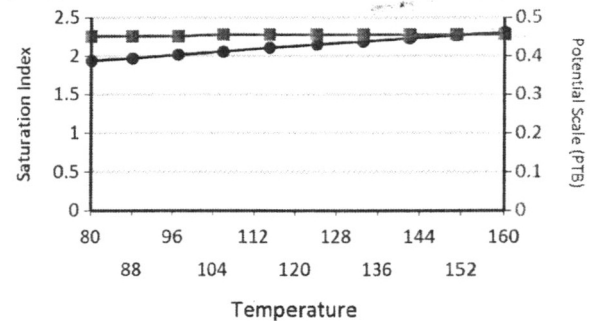
Barium Sulfate



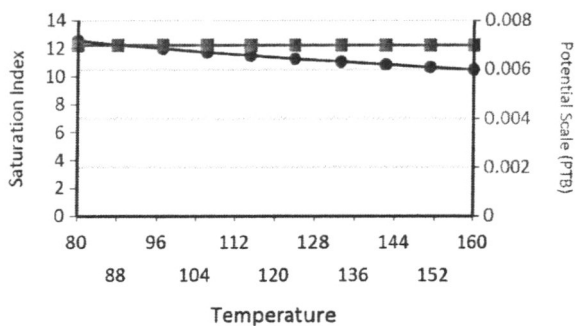
Iron Sulfide



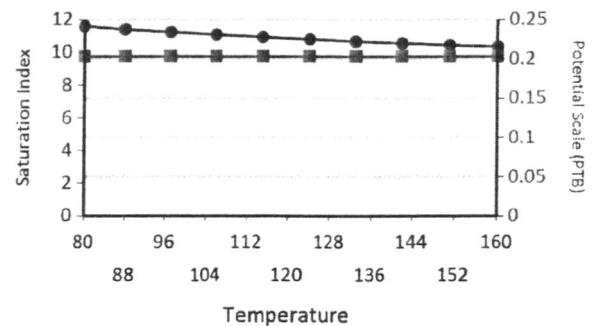
Iron Carbonate



Lead Sulfide

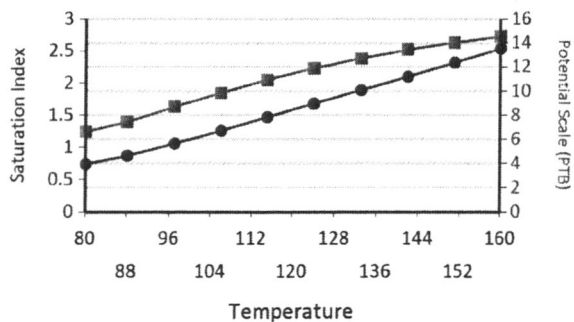


Zinc Sulfide

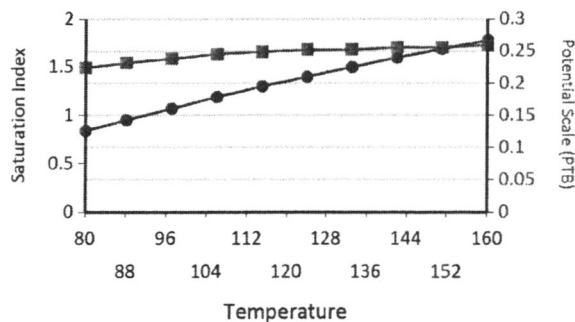


Water Analysis Report

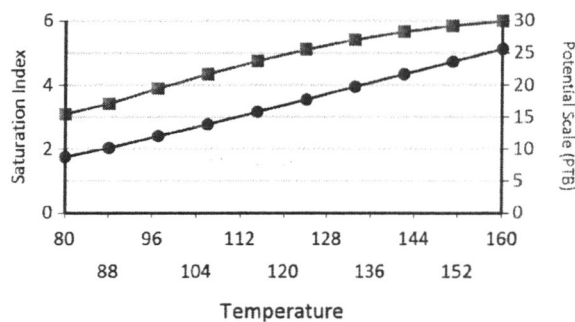
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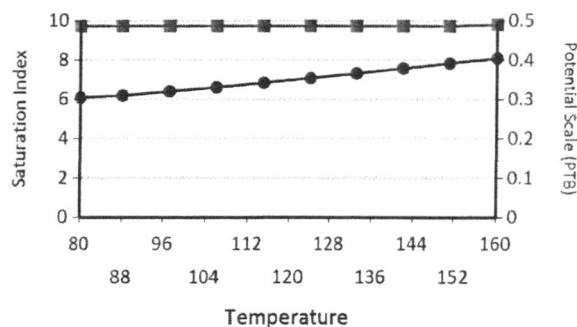
Zinc Carbonate



Mg Silicate



Fe Silicate





United States Environmental Protection Agency
Washington, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

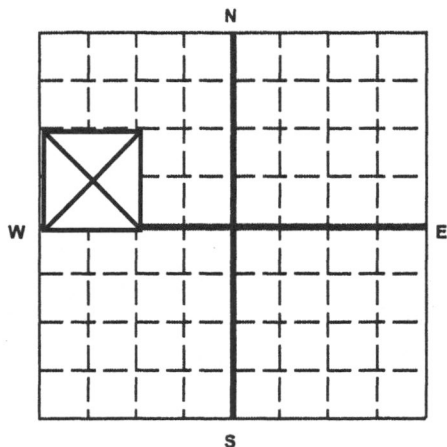
Name and Address of Existing Permittee

Petroglyph Operating Company, Inc. 2258
P.O. Box 7608
Boise, Idaho 83709

Name and Address of Surface Owner

Ute Indian Tribe
P.O. Box 70
Ft. Duchesne, Utah 84026

Locate Well and Outline Unit on
Section Plat - 640 Acres



State

Utah

County

Duchesne

Permit Number

UT2736-04410

Surface Location Description

☐ 1/4 of ☐ 1/4 of SW 1/4 of NW 1/4 of Section 28 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface

Location 1644 ft. from (N/S) N Line of quarter section
and 675 ft. from (E/W) W Line of quarter section.

WELL ACTIVITY

- ☐ Brine Disposal
☒ Enhanced Recovery
☐ Hydrocarbon Storage

TYPE OF PERMIT

- ☐ Individual
☒ Area

Number of Wells 111

Lease Name Ute Indian Tribe

Well Number UTE TRIBAL 28-05A

INJECTION PRESSURE

TOTAL VOLUME INJECTED

TUBING -- CASING ANNULUS PRESSURE (OPTIONAL MONITORING)

MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	13	1846	1890	33		0	0
February	13	1916	1955	77		0	0
March	13	1886	1930	50		0	0
April	13	1914	1939	27		0	0
May	13	1948	1961	53		0	0
June	13	1919	1946	29		0	0
July	13	1908	1962	68		0	0
August	13	1909	1948	159		0	0
September	13	1908	1956	189		0	0
October	13	1907	1941	198		0	0
November	13	1910	1927	326		0	0
December	13	1895	1902	230		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

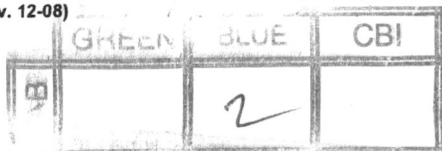
Name and Official Title (Please type or print)

Chad Stevenson, Water Facilities Supervisor

Signature

Date Signed

2/11/2014



U2 Entered

Date

3/21/14

Initial

ES

Multi-Chem Analytical Laboratory

1553 East Highway 40

Vernal, UT 84078

Units of Measurement: **Standard**

multi-chem®

A HALLIBURTON SERVICE

Water Analysis Report

Production Company: **PETROGLYPH ENERGY INC**Sales Rep: **James Patry**Well Name: **UTE TRIBAL 28-05A INJ**Lab Tech: **Gary Winegar**Sample Point: **Wellhead**Sample Date: **1/8/2014**Sample ID: **WA-262979**Scaling potential predicted using ScaleSoftPitzer from
Brine Chemistry Consortium (Rice University)

Sample Specifics		Analysis @ Properties in Sample Specifics			
Test Date:	1/15/2014	Cations	mg/L	Anions	mg/L
System Temperature 1 (°F):	180	Sodium (Na):	4191.67	Chloride (Cl):	5000.00
System Pressure 1 (psig):	1300	Potassium (K):	53.00	Sulfate (SO4):	246.00
System Temperature 2 (°F):	60	Magnesium (Mg):	22.00	Bicarbonate (HCO3):	2562.00
System Pressure 2 (psig):	15	Calcium (Ca):	50.00	Carbonate (CO3):	
Calculated Density (g/ml):	1.006	Strontium (Sr):	4.40	Acetic Acid (CH3COO)	
pH:	8.10	Barium (Ba):	0.48	Propionic Acid (C2H5COO)	
Calculated TDS (mg/L):	12151.44	Iron (Fe):	0.82	Butanoic Acid (C3H7COO)	
CO2 in Gas (%):		Zinc (Zn):	0.29	Isobutyric Acid ((CH3)2CHCOO)	
Dissolved CO2 (mg/L):	0.00	Lead (Pb):	0.03	Fluoride (F):	
H2S in Gas (%):		Ammonia NH3:		Bromine (Br):	
H2S in Water (mg/L):	3.00	Manganese (Mn):	0.21	Silica (SiO2):	20.54

Notes:

B=4.2 AI=0 Li=.77

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO4·2H2O		Celestite SrSO4		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
60.00	14.00	1.30	38.32	0.85	0.25	2.51	0.45	1.38	0.57	0.00	0.00	0.00	0.00	0.00	0.00	10.32	0.15
73.00	157.00	1.30	38.13	0.70	0.23	2.36	0.45	1.43	0.57	0.00	0.00	0.00	0.00	0.00	0.00	10.00	0.15
86.00	300.00	1.33	38.59	0.58	0.21	2.26	0.45	1.51	0.58	0.00	0.00	0.00	0.00	0.00	0.00	9.74	0.15
100.00	443.00	1.36	39.08	0.46	0.19	2.18	0.45	1.59	0.58	0.00	0.00	0.00	0.00	0.00	0.00	9.51	0.15
113.00	585.00	1.40	39.56	0.36	0.16	2.12	0.45	1.67	0.58	0.00	0.00	0.00	0.00	0.00	0.00	9.29	0.15
126.00	728.00	1.45	40.04	0.28	0.14	2.07	0.45	1.74	0.59	0.00	0.00	0.00	0.00	0.00	0.00	9.10	0.15
140.00	871.00	1.49	40.51	0.20	0.11	2.04	0.45	1.82	0.59	0.00	0.00	0.00	0.00	0.00	0.00	8.93	0.15
153.00	1014.00	1.55	40.94	0.14	0.08	2.03	0.45	1.89	0.59	0.00	0.00	0.00	0.00	0.00	0.00	8.77	0.15
166.00	1157.00	1.60	41.35	0.09	0.05	2.02	0.45	1.96	0.59	0.00	0.00	0.00	0.00	0.00	0.00	8.63	0.15
180.00	1300.00	1.66	41.71	0.05	0.03	2.03	0.45	2.03	0.59	0.00	0.00	0.00	0.00	0.00	0.00	8.50	0.15

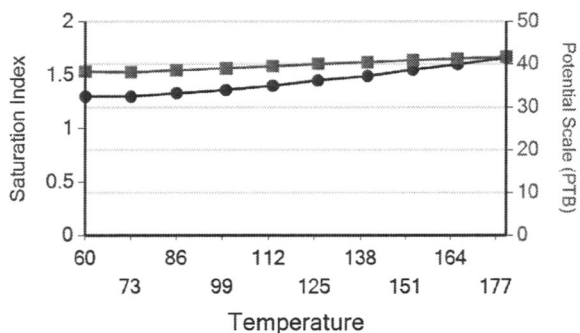
Water Analysis Report

Temp (°F)	PSI	Hemihydrate CaSO ₄ ·0.5H ₂ O		Anhydrate CaSO ₄		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
		SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
60.00	14.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.88	0.01	0.00	0.00	0.00	0.00	3.56	0.60
73.00	157.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.04	11.38	0.01	0.00	0.00	0.00	0.00	3.70	0.60
86.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.09	10.94	0.01	0.00	0.00	0.00	0.00	4.04	0.61
100.00	443.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.13	10.55	0.01	0.09	0.82	0.00	0.00	4.41	0.62
113.00	585.00	0.00	0.00	0.00	0.00	0.00	0.00	0.66	0.15	10.19	0.01	0.72	5.01	0.00	0.00	4.80	0.62
126.00	728.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83	0.16	9.86	0.01	1.35	9.08	0.24	1.90	5.22	0.63
140.00	871.00	0.00	0.00	0.00	0.00	0.00	0.00	0.99	0.18	9.56	0.01	1.99	12.94	0.60	4.21	5.65	0.63
153.00	1014.00	0.00	0.00	0.00	0.00	0.00	0.00	1.14	0.18	9.28	0.01	2.64	16.42	0.97	6.30	6.09	0.63
166.00	1157.00	0.00	0.00	0.00	0.00	0.00	0.00	1.28	0.19	9.03	0.01	3.28	19.35	1.34	8.09	6.54	0.63
180.00	1300.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41	0.19	8.80	0.01	3.92	21.60	1.71	9.55	7.00	0.63

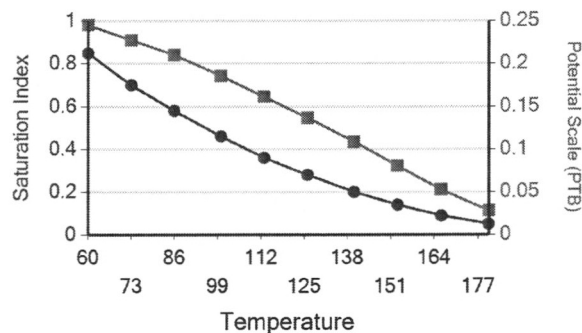
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Lead Sulfide Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Lead Sulfide Mg Silicate Ca Mg Silicate Fe Silicate

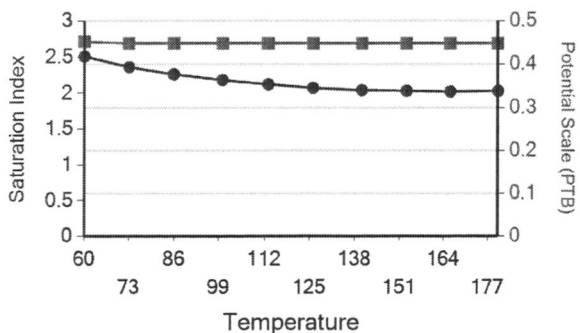
Calcium Carbonate



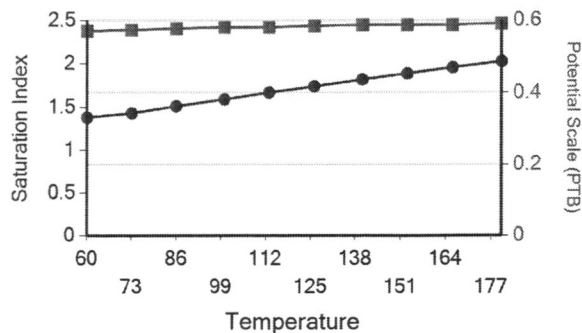
Barium Sulfate



Iron Sulfide

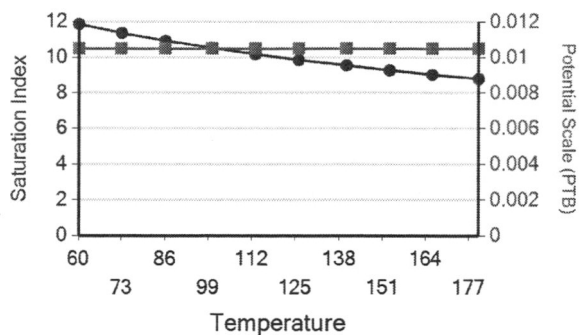


Iron Carbonate

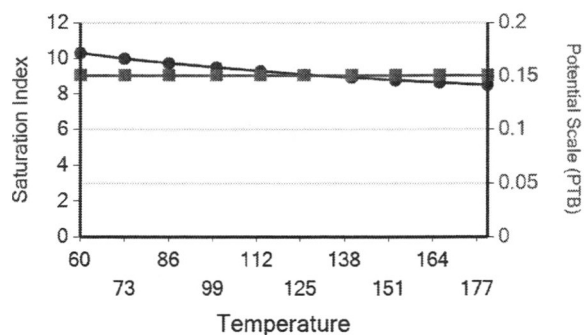


Water Analysis Report

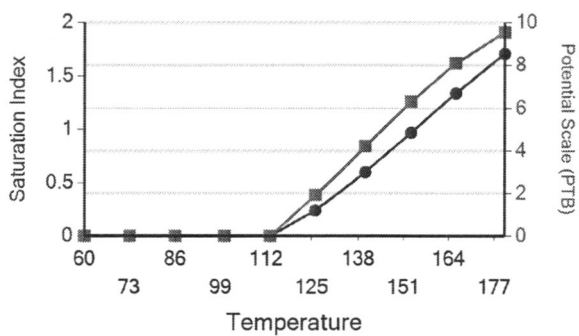
Lead Sulfide



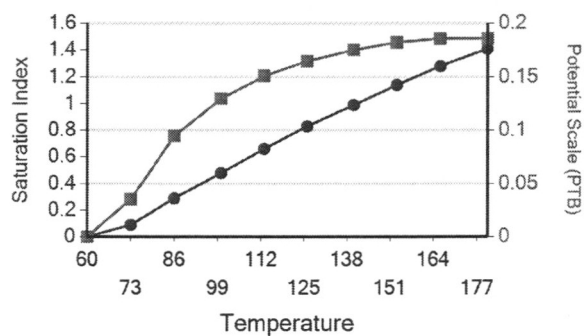
Zinc Sulfide



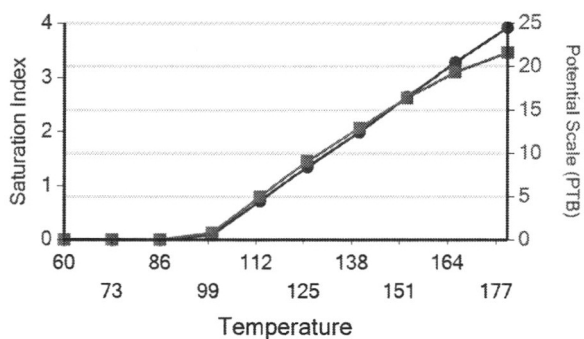
Ca Mg Silicate



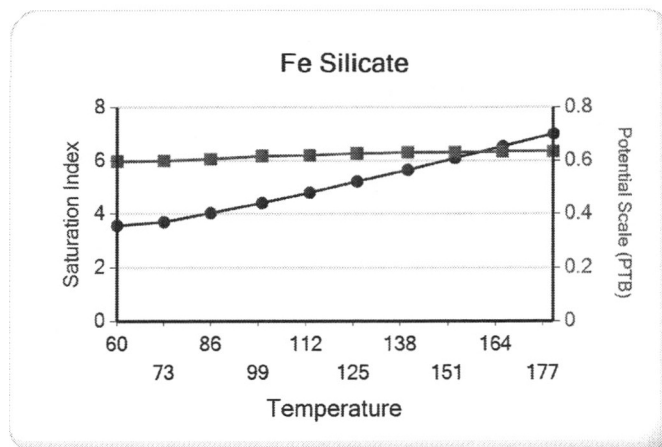
Zinc Carbonate



Mg Silicate



Water Analysis Report



February 3, 2014

Don Breffle
Mail Code: 8ENF-UFO
US EPA Region 8
1595 Wyncoop Street
Denver, CO 80202-1129

RE: EPA AREA PERMIT NO. UT2736-04410
Mechanical Integrity Test
Standard Five year retesting for Ute Tribal 28-05A

Mr. Breffle:

The enclosed Mechanical Integrity Test was performed on the above referenced well on January 17, 2014. This MIT was performed because the well was due for the regular five year Mechanical Integrity Test.

If you need any more information please call at (435) 722-5302.

Sincerely,
Petroglyph Operating Co., Inc.



Rodrigo Jurado
Regulatory Compliance Specialist

Encl: MIT for the Ute Tribal 28-05A

	GREEN	BLUE	CBI
TAB		2	

U2 Entered

Date 4/1/14

Initial JB

Mechanical Integrity Test Tubing/Casing Annulus Pressure Test

U.S. Environmental Protection Agency
Underground Injection Control Program
1595 Wynkoop Street, Denver, CO 80202

EPA Witness: _____ Date: 1 17 11
Test conducted by: CHAD STEVENSON
Others present: _____

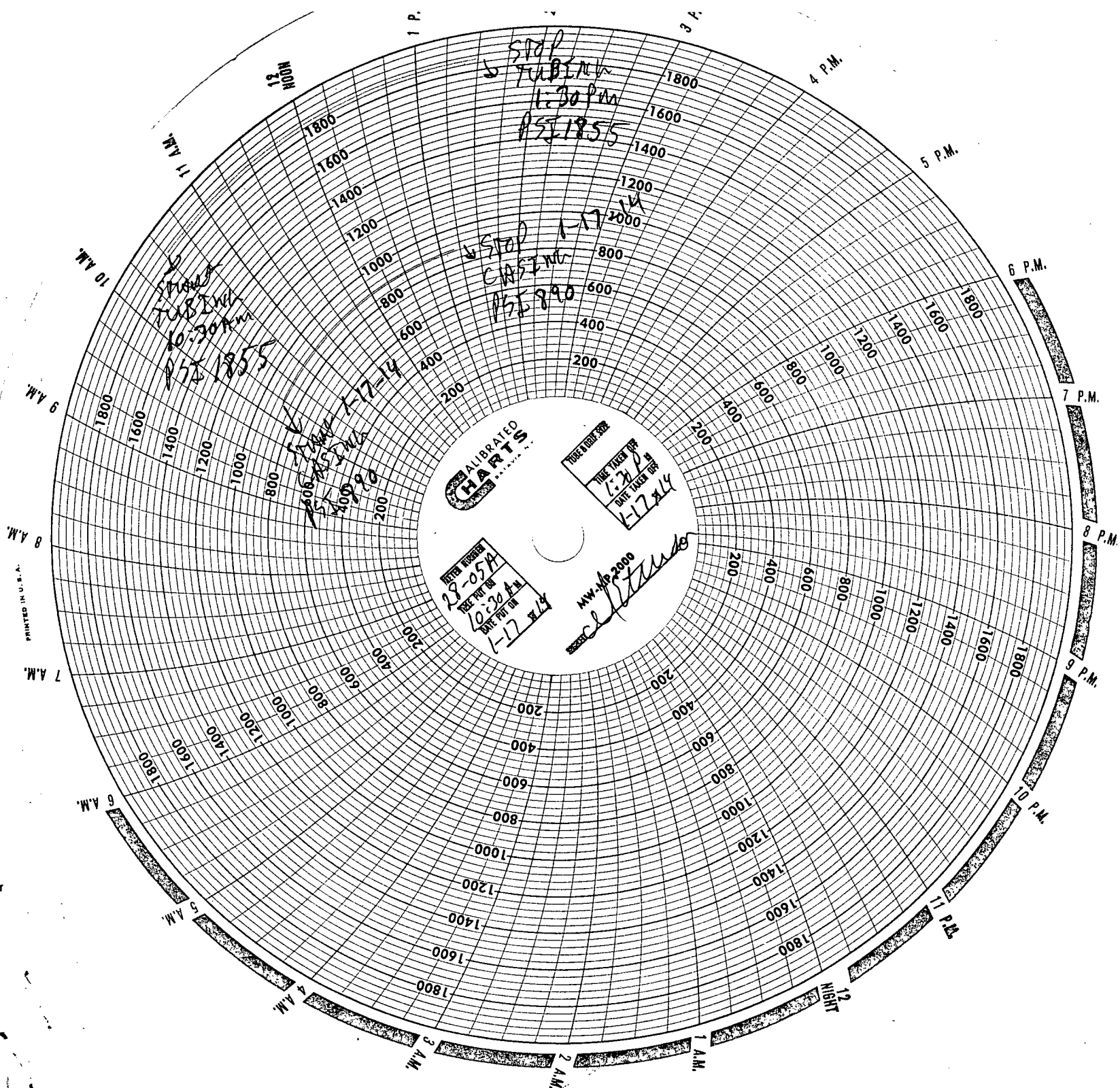
Well Name: <u>28-05A</u>	Type: ER SWD	Status: AC TA UC
Field: <u>ANTELOPE CREEK</u>		
Location: <u>28-05A</u> Sec: _____ T _____ N / S R _____ E / W County: <u>DUCHESNE</u> State: <u>UT</u>		
Operator: <u>PETROGLYPH ENERGY</u>		
Last MIT: <u>1</u> / <u>1</u>		Maximum Allowable Pressure: _____ PSIG

Regularly scheduled test? ☒ Yes ☐ No
Initial test for permit? ☐ Yes ☐ No
Test after well rework? ☐ Yes ☐ No

Well injecting during test? If Yes, rate: // bpd
Pre-test annulus pressure: _____ psig

MIT DATA TABLE	Test #1	Test #2	Test #3
TUBING		PRESSURE RECORD	
Initial Pressure	<u>1855</u> psig	psig	psig
End of test pressure	<u>1855</u> psig	psig	psig
CASING / TUBING ANNULUS		PRESSURE RECORD	
0 minutes	<u>890</u> psig	psig	psig
5 minutes	<u>890</u> psig	psig	psig
10 minutes	<u>890</u> psig	psig	psig
15 minutes	<u>890</u> psig	psig	psig
20 minutes	<u>890</u> psig	psig	psig
25 minutes	<u>890</u> psig	psig	psig
30 minutes	<u>890</u> psig	psig	psig
<u>3 hours</u> minutes	<u>890</u> psig	psig	psig
_____ minutes	psig	psig	psig
RESULT	<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail	<input type="checkbox"/> Pass <input type="checkbox"/> Fail

Does the annulus pressure build back up after the test? If Yes, _____ psig.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

FEB - 9 1998

Ref: 8P2-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Kathy Turner
Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
6209 North Highway 61
Hutchinson, Kansas 67502

RE: **UIC MINOR PERMIT MODIFICATION**
Conversion of Additional Well to
Antelope Creek Waterflood
EPA Area Permit UT2736-00000
Duchesne County, Utah

Dear Ms. Turner:

Your letter of December 10, 1997, requesting that the following production well be converted to a Class II enhanced oil recovery well and added to the Antelope Creek Waterflood, as authorized under EPA Area Permit #UT2736-00000, is hereby granted.

<u>NAME</u>	<u>LOCATION</u>	<u>EPA WELL PERMIT NO.</u>
Ute Tribal #28-05A	SW/NW Section 28 T 5 S - R 3 W Duchesne County, UT	#UT2736-04410

This additional well is within the boundary of the existing area permit for the Antelope Creek Waterflood (UT2736-00000), and this addition is made by minor permit modification according to the terms and conditions of that permit. Unless specifically mentioned in this Minor Permit Modification, all terms and conditions of the original permit will apply to the construction, operation, monitoring, and plugging and abandonment of this additional injection well. The proposed well location, well schematic, conversion procedures, plugging and abandonment plan and schematic, submitted by your office, have been reviewed and approved as follows:

- (1) The **conversion** of this production well has been reviewed, and found satisfactory, therefore, no corrective action is required.



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- (2) **Maximum injection pressure (Pmax)** - the permittee submitted a list of three (3) individual zones, within the Ute Tribal #28-05A, which were individually fraced and established an average fracture gradient (Fg) of 0.878 psi/ft. which was derived from instantaneous shut-in pressures (ISIP) from each zone. This Fg is acceptable to the Environmental Protection Agency (EPA), and a theoretical maximum allowable surface injection pressure (Pmax), for this well, may be calculated as shown below:

$$P_{max} = [Fg - 0.433 (Sg)] d$$

Where: P_{max} = Maximum surface injection pressure at wellhead

d = 4724' shallowest perforations

Sg = Specific gravity of injected water

$$P_{max} = [0.878 - .433 (1.00)] 4724$$

$$P_{max} = 2106 \text{ psig}$$

Until such time as the permittee demonstrates that a fracture gradient other than 0.878 psi/ft applies to the disposal zones of this newly converted well, the maximum allowable wellhead injection pressure (**Pmax**) for this well will be 2106 psig.

- (3) **The plugging and abandonment plan and schematic**, submitted by your office, has been reviewed, and approved.

Prior to commencing injection into this well, permittee must fulfill permit condition Part II, C. 2. and have received **separate written authorization to inject by the Environmental Protection Agency**. In summary, these requirements for your newly permitted injection well are:

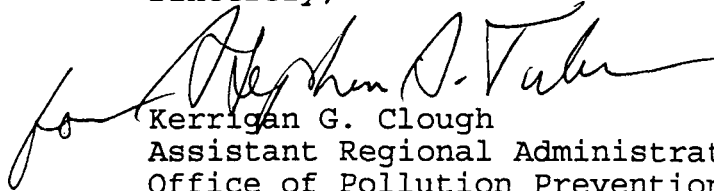
- (1) All conversion is complete and the permittee has submitted a completed **Well Rework Record (EPA Form 7520-12)**.
- (2) The pore pressure has been determined.
- (3) The well has successfully completed and passed a **mechanical integrity test (MIT)**; MIT guidance and EPA form enclosed.

All other provisions and conditions of the permit remain as originally issued.

If you have any questions, please contact Mr. Chuck Williams at (303) 312-6625.

Also, please direct the above requirements to Mr. Williams at the above letterhead address, citing **MAIL CODE 8P2-W-GW**. Thank you for your continued cooperation.

Sincerely,


Kerrigan G. Clough
Assistant Regional Administrator
Office of Pollution Prevention,
State and Tribal Assistance

Enclosure: MIT Guidance and EPA Form

cc: Mr. Ronald Wopsock, Chairman
Uintah & Ouray Business Committee

Ms. Elaine Willie, Environmental Director
Ute Indian Tribe

Norman Cambridge
BIA - Uintah & Ouray Agency

Mr. Jerry Kenczka
BLM - Vernal District Office

Mr. Gilbert Hunt
State of Utah Natural Resources
Division of Oil, Gas & Mining



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

JUL - 6 1995

Ref: 8WM-DW

MEMORANDUM

SUBJECT: Final Guidance for Conducting a Pressure Test to Determine if a Well Has Leaks in the Tubing, Casing or Packer

FROM: Tom Pike, Chief UIC Direct Implementation 

TO: UIC Direct Implementation Permit Writers

Introduction

The Underground Injection Control (UIC) regulations require that an injection well have mechanical integrity at all times (40 CFR 144.28 (f)(2) and 40 CFR 144.51 (q)(1)). A well has mechanical integrity (40 CFR 146.8) if:

- (1) There is no significant leak in the tubing, casing or packer; and
- (2) There is no significant fluid movement into an underground source of drinking water (USDW) through vertical channels adjacent to the injection wellbore.

Definition: Mechanical Integrity Pressure Test for Part I. A pressure test used to determine the integrity of all the downhole components of an injection well, usually tubing, casing and packer. It is also used to test tubing cemented in the hole by using a tubing plug or retrievable packer. Pressure tests must be run at least once every five years. If for any reason the tubing/packer is pulled, the injection well is required to pass another mechanical integrity test of the tubing casing and packer prior to recommencing injection regardless of when the last test was conducted. Tests run by operators in the absence of an EPA inspector must be conducted according to these procedures and recorded on either the attached form or an equivalent form containing the necessary information. A pressure recording chart documenting the actual annulus test pressures must be attached to the form.

This guidance addresses making a determination of Part I of Mechanical Integrity (no leaks in the tubing, casing or



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packer). The Region's policy is: 1) to determine if there are significant leaks in the tubing, casing or packer; 2) to assure that the casing can withstand pressure similar to that which would be applied if the tubing or packer fails; 3) to make the Region's test procedure consistent with the procedures utilized by other Region VIII Primacy programs; and 4) to provide a procedure which can be easily administered and is applicable to all class I and II wells. Although there are several methods allowed for determining mechanical integrity, the principal method involves running a pressure test of the tubing/casing annulus. Region VIII's procedure for running a pressure test is intended to aid UIC field inspectors who witness pressure tests for the purpose of demonstrating that a well has Part I of Mechanical Integrity. The guidance is also intended as a means of informing operators of the procedures required for conducting the test in the absence of an EPA inspector.

Pressure Test Description

Test Frequency

The mechanical integrity of an injection well must be maintained at all times. Mechanical integrity pressure tests are required at least every five (5) years. If for any reason the tubing/packer is pulled, however, the injection well is required to pass another mechanical integrity test prior to recommencing injection regardless of when the last test was conducted. The Regional UIC program must be notified of the workover and the proposed date of the pressure test. The well's test cycle would then start from the date of the new test if the well passes the test and documentation is adequate. Tests may be required on a more frequent basis depending on the nature of the injectate and the construction of the well (see Section guidance on MITs for wells with cemented tubing and regulations for Class I wells).

Region VIII's criteria for well testing frequency is as follows:

1. Class I hazardous waste injection wells; initially [40 CFR 146.68(d)(1)] and annually thereafter;
2. Class I non-hazardous waste injection wells; initially and every two (2) years thereafter, except for old permits (such as the disposal wells at carbon dioxide extraction plants which require a test at least every five years);
3. Class II wells with tubing, casing and packer; initially and at least every five (5) years thereafter;

4. Class II wells with tubing cemented in the hole; initially and every one (1) or two (2) years thereafter depending on well specific conditions (See Region VIII UIC Section Guidance #36);
5. Class II wells which have been temporarily abandoned (TAd) must be pressure tested after being shut-in for two years; and
6. Class III uranium extraction wells; initially.

Test Pressure

To assure that the test pressure will detect significant leaks and that the casing is subjected to pressure similar to that which would be applied if the tubing or packer fails, the tubing/casing annulus should be tested at a pressure equal to the maximum allowed injection pressure or 1000 psig whichever is less. The annular test pressure must, however, have a difference of at least 200 psig either greater or less than the injection tubing pressure. Wells which inject at pressures of less than 300 psig must test at a minimum pressure of 300 psig, and the pressure difference between the annulus and the injection tubing must be at least 200 psi.

Test Criteria

1. The duration of the pressure test is 30 minutes.
2. Both the annulus and tubing pressures should be monitored and recorded every five (5) minutes.
3. If there is a pressure change of 10 percent or more from the initial test pressure during the 30 minute duration, the well has failed to demonstrate mechanical integrity and should be shut-in until it is repaired or plugged.
4. A pressure change of 10 percent or more is considered significant. If there is no significant pressure change in 30 minutes from the time that the pressure source is disconnected from the annulus, the test may be completed as passed

Recordkeeping and Reporting

The test results must be recorded on the attached form. The annulus pressure should be recorded at five (5) minute intervals. Tests run by operators in the absence of an EPA inspector must be conducted according to these procedures and recorded on the attached form or an equivalent form. A pressure recording chart documenting the actual annulus test pressures must be attached to the submittal. The tubing pressure at the beginning and end of each test must be recorded. The volume of the annulus fluid bled back at the surface after the test should be measured and recorded on the form. This can be done by bleeding the annulus pressure off and discharging the associated fluid into a five gallon container. The volume information can be used to verify the approximate location of the packer.

Procedures for Pressure Test

1. Scheduling the test should be done at least two (2) weeks in advance.
2. Information on the well completion (location of the packer, location of perforations, previous cement work on the casing, size of casing and tubing, etc.) and the results of the previous MIT test should be reviewed by the field inspector in advance of the test. Regional UIC Guidance #35 should also be reviewed. Information relating to the previous MIT and any well workovers should be reviewed and taken into the field for verification purposes.
3. All Class I wells and Class II SWD wells should be shut-in prior to the test. A 12 to 24-hour shut-in is preferable to assure that the temperature of the fluid in the wellbore is stable.
4. Class II enhanced recovery wells may be operating during the test, but it is recommended that the well be shut-in if possible.
5. The operator should fill the casing/tubing annulus with inhibited fluid at least 24 hours in advance, if possible. Filling the annulus should be undertaken through one valve with the second valve open to allow air to escape. After the operator has filled the annulus, a check should be made to assure that the annulus will remain full. If the annulus can not maintain a full column of fluid, the operator should notify the Director and begin a rework. The operator should measure and report the volume of fluid added to

the annulus. If not already the case, the casing/tubing valves should be closed, at least, 24 hours prior to the pressure test.

Following steps are at the well:

6. Read tubing pressure and record on the form. If the well is shut-in, the reported information on the actual maximum operating pressure should be used to determine test pressures.
7. Read pressure on the casing/tubing annulus and record value on the form. If there is pressure on the annulus, it should be bled off prior to the test. If the pressure will not bleed-off, the guidance on well failures (Region VIII UIC Section Guidance #35) should be followed.
8. Ask the operator for the date of the last workover and the volume of fluid added to the annulus prior to this test and record information on the form.
9. Hook-up well to pressure source and apply pressure until test value is reached.
10. Immediately disconnect pressure source and start test time. (If there has been a significant drop in pressure during the process of disconnection, the test may have to be restarted.) The pressure gages used to monitor injection tubing pressure and annulus pressure should have a pressure range which will allow the test pressure to be near the mid-range of the gage. Additionally, the gage must be of sufficient accuracy and scale to allow an accurate reading of a 10 percent change to be read. For instance, a test pressure of 600 psi should be monitored with a 0 to 1000 psi gage. The scale should be incremented in 20 psi increments.
11. Record tubing and annulus pressure values every five (5) minutes.
12. At the end of the test, record the final tubing pressure.
13. If the test fails, check the valves, bull plugs and casing head close up for possible leaks. The well should be retested.
14. If the second test indicates a well failure, the Region should be informed of the failure within 24 hours by the operator, and the well should be shut-in within 48 hours per Headquarters guidance #76. A follow-up

letter should be prepared by the operator which outlines the cause of the MIT failure and proposes a potential course of action. This report should be submitted to EPA within five days.

15. Bleed off well into a bucket, if possible, to obtain a volume estimate. This should be compared to the calculated value obtained using the casing/tubing annulus volume and fluid compressibility values.
16. Return to office and prepare follow-up.

Attachment

U.S. Environmental Protection Agency
Underground Injection Control Program, UIC Implementation Section, 8WM-DW
999 18th Street, Suite 500, Denver, CO 80202-2466
This form was printed on 02/02/1998.

Others present: _____

Initial casing/tubing annulus pressure _____ psig
Does the annulus pressure build back up? ☐ Yes ☐ No

Page 1 of 2



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

Ref: 8P2-W-GW

MAR - 4 1998

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Kathy Turner
Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, KS 67504-1839

RE: UNDERGROUND INJECTION CONTROL (UIC)
Authorization to Inject
Ute Tribal #28-05A (UT04410)
Antelope Creek Waterflood
EPA Area Permit No. UT2736-00000
Duchesne County, Utah

Dear Ms. Turner:

Thank you for the recently submitted information pertaining to the above-referenced area permit and well. The Well Rework Record, injection zone fluid pore pressure survey, and the successfully run mechanical integrity test, with chart, on the Ute Tribal #28-05A (UT2736-04410) have been reviewed and approved. Petroglyph Operating Company, Inc, has complied with all of the pertinent permit conditions (Part II, Section C. 2.) for the Antelope Creek Waterflood Area Permit.

Pleased be advised that administrative approval has been granted for injection of Class II fluids into the above referenced well for enhanced recovery of oil and gas. Please also be aware of the monitoring, recordkeeping and reporting requirements described in Part II, Section D of the permit and that the current **maximum surface injection pressure (Pmax) is limited to 2106 psig**, as modified by UIC Minor Permit Modification dated February 9, 1998.

Upon receipt of this letter, the Compliance Officer, Mr. John Carson will then take over routine matters involving well operations, future correspondence, forms, and reports. Please direct all correspondence to the attention of Mr. Carson at the above letterhead (**MAIL CODE ENF-T**) or contact Mr. Carson at (303) 312-6203. Thank you for your continued cooperation.

Sincerely,

D. Edwin Hogle
Director, Groundwater Program
Office of Pollution Prevention
State and Tribal Assistance



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cc: Mr. Ronald Wopsock, Chairman
Uintah & Ouray Business Committee
Ute Indian Tribe

Ms. Elaine Willie, Environmental Director
Ute Indian Tribe

Mr. Norman Cambridge
BIA - Uintah & Ouray Agency

Mr. Gil Hunt
State of Utah Natural Resources
Division of Oil, Gas, and Mining

Mr. Jerry Kenczka
BLM - Vernal District Office